Claims 1-20 (Cancelled).

21. (New) A chromatic dispersion compensating system for handling an optical signal, said chromatic dispersion compensating unit comprising:

a first fiber segment comprising chromatic dispersion compensating fiber;

a second fiber segment comprising chromatic dispersion compensating fiber;

a pump system disposed to inject optical pump energy into a first end of said first fiber segment so as to counter-propagate relative to an optical signal traversing said first fiber segment and said second fiber segment; and

an optical filter structure coupled to a second end of said first fiber segment and a first end of said second fiber segment; and

wherein said optical signal propagates through said optical filter structure from said second fiber segment to said first fiber segment, said optical pump energy propagates through said optical filter structure from said first fiber segment to said second fiber segment, and said optical filter structure substantially blocks energy at a frequency of said optical signal from traveling from said first fiber segment into said second fiber segment so that Raman amplification is induced in said first fiber segment and said second fiber segment and double Rayleigh backscattering effects are ameliorated.

22. (New) The chromatic dispersion compensating system of claim 21 wherein said optical filter structure comprises:

a circulator having a first port, a second port, and a third port; and

a fiber Bragg grating configured to reflect optical energy at a frequency of said optical pump energy and to absorb optical energy at a frequency of said optical signal.

23. (New) The chromatic dispersion compensating system of claim 22 wherein said optical pump energy enters said third port of said circulator from said first fiber segment, exits said first port of said circulator, reflects from said fiber Bragg grating into said first port of said circulator and exits said second port of said circulator into said second fiber segment.

24. (New) The chromatic dispersion compensating system of claim 23 wherein reflections of said optical signal enter said third port of said circulator from said first fiber segment, exit said first port of said circulator and are not reflected by said fiber Bragg grating.

25. (New) The chromatic dispersion compensating system of claim 23 wherein said optical signal enters said second port of said circulator from said second fiber segment and exits said third port of said circulator into said first fiber segment.

26. (New) The chromatic dispersion compensating system of claim 21 further comprising:

an isolator coupled to a second end of said first fiber segment and configured to pass optical energy into said first fiber segment via said second end and block optical energy from exiting said second fiber segment via said second end.

27. (New) The chromatic dispersion compensating system of claim 21 further comprising:

a first Erbium-doped fiber amplifier (EDFA); and

a second Erbium-doped fiber amplifier (EDFA); and

wherein said optical energy propagates through and is amplified by said first EDFA before encountering said second fiber segment and propagates through and is amplified by said second EDFA after passing through said first fiber segment.

28. (New) The apparatus of claim 21 further comprising:

an additional optical filter structure coupled to a second end of said second fiber segment and a first end of a third fiber segment;

wherein said optical signal propagates through said additional optical filter structure from said third fiber segment to said second fiber segment, said optical pump energy propagates through said optical filter structure from said second fiber segment to said third fiber segment, and substantially blocks energy at a frequency of said optical signal from traveling from said second fiber segment into said third fiber segment so that Raman amplification is also induced in said third fiber segment.

29. (New) The apparatus of claim 21 wherein said optical pump energy comprises:

a first optical pump signal at a first frequency; and

a second optical pump signal at a second frequency.

30. (New) A method of applying chromatic dispersion compensation to an optical signal, said method comprising:

injecting optical pump energy into a first end of a first fiber segment of chromatic dispersion compensating fiber so that said optical pump energy counter-propagates relative to an optical signal traversing said first fiber segment and a second fiber segment of chromatic dispersion compensating fiber;

passing said optical signal from said second fiber segment into a second end of said first fiber segment;

passing said optical pump energy from said first fiber segment into said second fiber segment; and

blocking optical energy at a frequency of said optical signal from entering said second fiber segment from said first fiber segment.

31. (New) The method of claim 30 wherein passing said optical signal comprises:

passing said optical signal from a first end of said second fiber segment into a second port of a circulator and out a third port of said circulator into said second end of said first fiber segment.

32. (New) The method of claim 30 wherein passing said optical pump energy comprises:

passing said optical pump energy from said second end of said fiber segment into a third port of a circulator and out a first port of said circulator;

reflecting said optical pump energy from a fiber Bragg grating and back into said first port of said circulator, out said second port of said circulator and into said second fiber segment.

33. (New) The method of claim 30 wherein blocking said optical energy at said frequency of said optical signal comprises:

passing said optical energy at said frequency of said optical signal into a third port of a circulator and out of said second port of said circulator; and

absorbing said optical energy at a Fiber Bragg grating.

34. (New) The method of claim 30 further comprising employing an isolator to block said optical pump energy from exiting a second end of said second fiber segment while permitting said optical signal to enter said second end of said second fiber segment.

35. (New) The method of claim 30 wherein injecting optical pump energy comprises:

injecting a first optical pump signal at a first frequency; and

injecting a second optical pump signal at a second frequency different than said first frequency.

36. (New) The method of claim 30 further comprising:

amplifying said optical signal in an Erbium-doped fiber amplifier (EDFA) prior to insertion into said second fiber segment.

37. (New) The method of claim 30 further comprising:

amplifying said optical signal in an Erbium-doped fiber amplifier (EDFA) after passing said optical signal through said first fiber segment.

38. (New) A chromatic dispersion compensating unit, said chromatic dispersion compensating unit comprising:

a first fiber segment of chromatic dispersion compensating fiber;

a second fiber segment of chromatic dispersion compensating fiber;

means for injecting optical pump energy into a first end of said first fiber segment so that said optical pump energy counter-propagates relative to an optical signal traversing said first fiber segment and said second fiber segment;

wavelength-selective means for reflecting optical energy at a frequency of said pump energy, optical energy at a frequency of said optical signal being absorbed by said wavelength-selective reflecting means;

means for directing optical energy exiting a first end of said second fiber segment into a second end of said first fiber segment, for directing optical energy exiting said second end of said first fiber segment into said wavelength-selective reflecting means, and for directing optical energy reflecting from said wavelength-reflective means into said first end of said second fiber segment.

39. (New) The chromatic dispersion compensating unit of claim 38 wherein said wavelength-selective reflecting means comprises a fiber Bragg grating.

40. (New) The a chromatic dispersion compensating unit of claim 38 wherein said directing means comprises a three-port circulator.

41. (New) The chromatic dispersion compensating unit of claim 38 wherein said optical pump energy comprises a first pump signal at a first frequency and a second pump signal at a second frequency different than said first frequency.

42. (New) The chromatic dispersion compensating unit of claim 41 wherein said wavelength-selective reflecting means comprises:

a first fiber Bragg grating configured to reflect optical energy at said first frequency; and

a second fiber Bragg grating configured to reflect optical energy at said second frequency.

43. (New) The chromatic dispersion compensating unit of claim 38 further comprising:

an Erbium-doped fiber amplifier (EDFA) that amplifies said optical signal prior to insertion into said second fiber segment.

44. (New) The chromatic dispersion compensating unit 38 further comprising:

an Erbium-doped fiber amplifier (EDFA) that amplifies said optical signal after said optical signal passes through said first fiber segment.